

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte SHIN-ICHI AKOH

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Appeal No. 2002-1914  
Application 09/247,889

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ON BRIEF

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Before ABRAMS, FRANKFORT, and STAAB, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 3, all of the claims pending in this application.

Appellant's invention relates to a method for manufacturing magnetic heads used in the recording and reproduction equipment of various electronic devices, such as hard disk systems,

computers, and word processors, wherein the magnetic heads perform data recording and reproduction while traveling and flying at an infinitesimal gap over the flat surface of a recording medium. More particularly, appellant notes on page 6 of the specification that

[t]he purpose of the present invention is to provide a method in which, by adding roundness to the angled parts of the peripheral parts of the magnetic head slider, highly durable and reliable magnetic heads may be manufactured which prevent adhesion to the recording medium surface, improve resistance to disk shocks, and enable stable flying characteristics even for smaller magnetic heads and lower flying heights.

In describing the method of manufacture in the present application, appellant indicates that photoresist applied to the air bearing surface (ABS) of the magnetic head slider causes rounding at the slider peripheral part (2a in Fig. 2B) due to its surface tension, and when this is baked (Fig. 2C), the film thickness of the photoresist at said peripheral part becomes rounded and thin facing the outside edges; therefore this curved shape (21a of Fig. 2D) is transferred to the ABS of the slider by uniform dry etching. Independent claim 1 is representative of the subject matter on appeal and a copy of that claim can be found in the Appendix to appellant's brief.

Appeal No. 2002-1914  
Application 09/247,889

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Ellenberger	4,333,229	Jun. 8, 1982
Sawada et al. (Sawada)	4,896,417	Jan. 30, 1990

In addition to the foregoing prior art references, the examiner has also relied upon applicant's admitted prior art (hereinafter the APA) set forth on pages 1 and 2 of the specification in the "Background Information" section.

Claims 1 through 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Ellenberger and Sawada.

Rather than reiterate the examiner's full commentary regarding the above-noted rejection and the conflicting viewpoints advanced by the examiner and appellant regarding the rejection, we make reference to the examiner's answer (Paper No. 20, mailed October 1, 2001) for the reasoning in support of the

Appeal No. 2002-1914  
Application 09/247,889

rejection, and to appellant's brief (Paper No. 19, filed July 23, 2001) and reply brief (Paper No. 22, filed February 15, 2002) for the arguments thereagainst.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims, to the applied prior art references and APA, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have made the determination which follows.

In rejecting claims 1 through 3 under 35 U.S.C. § 103(a) on the basis of the collective teachings of the APA, Ellenberger and Sawada, it is the examiner's position (answer, page 3) that the APA discloses appellant's claimed method except for 1) operating on an individual slider and 2) the etching technique of using a variable thickness photo resist mask to create surfaces at an acute angle to the masked surface. To address the first of these differences the examiner turns to Ellenberger, urging that Ellenberger teaches "the equivalency of shaping individual

sliders and batch processing (see Column 7, lines 3-12).” From this teaching, the examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of appellant’s invention to individually shape the APA sliders as a matter of choice between art recognized equivalents, each having their own advantages.

With respect to the second difference, the examiner contends that it is conventional in the etching arts to create surfaces at an acute angle to the masked surface by using the “rounded” masks as exemplified by Sawada at Figures 7A-7E. From this teaching, the examiner has concluded that it would have been obvious to one of ordinary skill in the art at the time of appellant’s invention “to have achieved the chamfer discussed by APA at page 2, lines 16-18 of the instant specification by the technique exemplified by Sawada et al to realize the advantages inherent to etching versus mechanical machining.” The examiner further asserts that “this substitution, and its attendant advantages, is [sic] common knowledge in the manufacturing arts and in the shaping of air bearing surfaces as discussed by APA at page 1, lines 18-22 of the instant specification.”

Having reviewed and evaluated the applied prior art references and the APA, we are of the opinion that the examiner's position regarding the purported obviousness of claims 1 through 3 on appeal represents a classic case of the examiner using impermissible hindsight derived from appellant's own disclosure in an attempt to reconstruct appellant's claimed subject matter from disparate teachings and broad concepts purported to be present in the applied prior art. In our view, there is no motivation or suggestion in the applied references to Ellenberger and Sawada which would have reasonably led one of ordinary skill in the art to modify the APA in the particular manner urged by the examiner so as to result in appellant's claimed subject matter.

Like appellant (reply brief, pages 2-3), we note that neither the APA, Ellenberger, or Sawada teach or suggest the step of applying a photoresist on an air bearing surface "such that the photoresist is rounded and slopes downward in a curved shape toward a peripheral region of the air bearing surface," as recited in claim 1 on appeal, followed by baking the photoresist and then by uniform dry etching of the air bearing surface. Sawada teaches a method of using a photoresist layer (62) and dry

etching to ensure formation of a recess (63) having sloping side walls with an angle of inclination of 70° or smaller so as to form a thin film magnetic head wherein the magnetic fluxes are gradually gathered toward the tip edge of the pole so that the maximum magnetic flux density can be obtained at the tip end of the pole so that recording can be performed with high recording density. We see nothing in Sawada, the APA, or Ellenberger that relates to appellant's particular method of shaping a magnetic head slider via a photoresist applied in the specific manner required in claim 1 on appeal and subjected to baking and uniform dry etching to shape the peripheral region of the slider ABS and thus improve the magnetic head's flying characteristics, as appellant has done.

While page 2, lines 16-18, of appellant's specification allude to a method in the prior art in which the peripheral part of a slider is chamfered by lapping the ABS or otherwise using machining, we see nothing in this portion of the specification or in the references to Ellenberger and Sawada which would have been suggestive to one of ordinary skill in the art of appellant's method as set forth in claims 1 through 3 on appeal. In fact, as appellant has pointed out in the brief, Ellenberger (at col. 6,

lines 21-24) also teaches machining a desired bevel (38) longitudinally of the rails (6) at a peripheral part of the slider ABS (note Fig. 12). Thus, both the APA and Ellenberger teach lapping or other machining to form a chamfer at the peripheral part of a magnetic head and we see nothing in the prior art which would have led a person of ordinary skill in the art to any other technique for forming such chamfered surfaces on the peripheral portion of a magnetic head.

Since we have determined that the teachings and suggestions which would have been fairly derived from the APA, Ellenberger and Sawada would not have made the subject matter as a whole of claims 1 through 3 on appeal obvious to one of ordinary skill in the art at the time of appellant's invention, we must refuse to sustain the examiner's rejection of those claims under 35 U.S.C. § 103(a).



Appeal No. 2002-1914  
Application 09/247,889

In light of the foregoing, the decision of the examiner to reject claims 1 through 3 under 35 U.S.C. § 103(a) is reversed.

REVERSED

NEAL E. ABRAMS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
CHARLES E. FRANKFORT	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
LAWRENCE J. STAAB	)	
Administrative Patent Judge	)	

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Appeal No. 2002-1914  
Application 09/247,889

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